This listing of claims will replace all prior versions, and listings, of claims in the application.

AMENDMENTS TO THE CLAIMS:

1. (previously amended) A hybrid microlens, comprising two layers that are transparent at a wavelength of interest, including:

a first layer that has a low index of refraction;

a second layer ~~bonded~~ affixed to said first layer; and

said second layer having an optical focusing element formed on the surface non-adjacent to said first layer, said second layer being substantially thinner and having a higher index of refraction than the first layer, thereby reducing both the microlens sag and the sum of the two layer thicknesses.

2. (previously amended) The hybrid microlens of claim 1 wherein said optical focusing element comprises a refractive microlens.

3. (original) The hybrid microlens of claim 1 wherein said optical focusing element is formed by dry etching.

4. (previously amended) The hybrid microlens of claim 1 wherein said first layer comprises one of fused silica and optical glass.

5. (previously amended) The hybrid microlens of claim 1 wherein said second layer comprises a semiconductor.

6. (original) The hybrid microlens of claim 1 wherein said second layer is comprised substantially of silicon.

7. (previously amended) The hybrid microlens of claim 1 wherein an antireflection layer is situated between the first and second layers, and said antireflection layer is optimized for the refractive indices of said first and second layers.

8. (previously amended) The hybrid microlens of claim 1 wherein said second layer comprises a plurality of trenches that divide said second layer into a plurality of portions thereby providing reduced mechanical stress in the second layer.

9-10. (previously canceled)

11-15. (previously withdrawn)

16. (previously amended) A method for making a plurality of hybrid microlenses with a first layer and a second layer, said first layer having a lower index of refraction than said second layer, comprising the steps of:

anti-reflection coating one of said first and second layers;

~~bonding~~ affixing the second layer to the first layer; and

forming a plurality of optical focusing elements on the surface of the second layer non-adjacent to said first layer.

17. (previously amended) The method of claim 16 wherein said optical focusing element comprises a refractive microlens.

18. (previously amended) The method of claim 16 wherein said method of forming said optical focusing elements comprises dry etching.

19-20. (previously withdrawn)

21. (previously added) The method of claim 16 further comprising thinning and polishing the second layer after bonding the layers and before forming said plurality of optical focusing elements.

22. (previously added) The method of claim 16 wherein said step of forming a plurality of optical focusing elements is performed before bonding said first and second layers.

23. (previously added) The method of claim 16 wherein said step of bonding said first and

second layers comprises anodic bonding.

24. (previously added) The hybrid microlens of claim 1, wherein said first layer comprises a non-perpendicular optical surface formed on a surface non-adjacent to said second layer, said non-perpendicular surface approximately aligned with said optical focusing element.

25. (previously added) The hybrid microlens of claim 1 further comprising an optical fiber affixed to said first layer, said optical fiber having an end face situated proximate to said first layer, said optical fiber having a core arranged with respect to said optical focusing element to couple light between said core of said optical fiber and said optical focusing element.

26. (previously added) The hybrid microlens of claim 25 wherein said first layer comprises a non-perpendicular optical surface formed on the first layer non-adjacent to said second layer.

27. (previously added) The hybrid microlens of claim 25 wherein said optical focusing element is arranged with respect to said core so that said core is approximately at a focal point defined by said optical focusing element.

28. (new) A hybrid microlens having two layers that are transparent at a wavelength of interest, comprising:

a first layer that has a low index of refraction;

a second layer affixed to said first layer;

an antireflection layer situated between the first and second layers for reducing optical loss due to the differences in the the refractive indices of said first and second layers; and

said second layer having an optical focusing element formed on the surface non-adjacent to said first layer, said second layer being substantially thinner and having a higher index of refraction than the first layer, thereby reducing both the microlens sag and the sum of the two layer thicknesses.

29. (new) The hybrid microlens of claim 28 wherein said optical focusing element comprises a

refractive microlens.

30. (new) The hybrid microlens of claim 28 wherein said first layer comprises one of fused silica and optical glass.

31. (new) The hybrid microlens of claim 28 wherein said second layer comprises a semiconductor.

32. (new) The hybrid microlens of claim 28 wherein said second layer comprises a plurality of trenches that divide said second layer into a plurality of portions thereby providing reduced mechanical stress in the second layer.

33. (new) The hybrid microlens of claim 28 further comprising an optical fiber affixed to said first layer, said optical fiber having an end face situated proximate to said first layer, said optical fiber having a core arranged with respect to said optical focusing element to couple light between said core of said optical fiber and said optical focusing element, wherein said optical focusing element is arranged with respect to said core so that said core is approximately at a focal plane defined by said optical focusing element.

34. (new) A hybrid microlens, that has two layers that are transparent at a wavelength of interest, comprising:

a first layer;

a second layer affixed to said first layer; and

said second layer having an optical focusing element formed on the surface non-adjacent to said first layer, said second layer having a higher index of refraction than the first layer.

35. (new) The hybrid microlens of claim 34 wherein said optical focusing element comprises a refractive microlens.

36. (new) The hybrid microlens of claim 34 wherein said optical focusing element is formed by

dry etching.

37. (new) The hybrid microlens of claim 34 wherein said first layer comprises one of fused silica and optical glass.

38. (new) The hybrid microlens of claim 34 wherein said second layer comprises a semiconductor.

39. (new) The hybrid microlens of claim 34 wherein said second layer is comprised substantially of silicon.